

Alarming rise of iron deficiency anemia may herald 'Lost Generation'

The sharp plunge of the Rupiah in the aftermath of a regional economic crisis sweeping across Southeast Asia in mid-1997 has resulted in high inflation, massive unemployment and a consequential decline in consumer spending power. Over a year into the crisis, the full scope of its impact is just beginning to emerge, with potentially tragic consequences for a 'lost generation' of children born into hard times.

There are alarming signs that micronutrient deficiencies are on the rise – in particular, iron deficiency. Iron deficiency is the leading cause of anemia (Iron Deficiency Anemia or IDA), which is the most common nutritional disorder in the world. IDA impairs the immune system and reduces physical and mental capacity among affected populations, with a wide range of

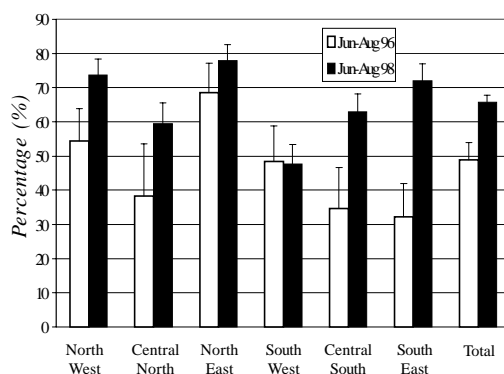
consequences on work productivity, intellectual development and mortality.

The impact of increased iron deficiency among infants and young children can be especially debilitating, as even mild anemia can impair intellectual development. Between the ages of 6 to 24 months, a child's physical development requires adequate nutrition through breastfeeding and/or complementary feeding with micronutrient-fortified weaning foods. Inadequate micronutrient intake during this crucial period of development can result in reduced intellectual capacity and stunted growth. Children born into families that cannot afford micronutrient-rich foods due to the crisis may become a 'lost generation', sowing the seeds of today's problems to be reaped in an uncertain future.

Recent data collected in a joint collaborative effort by Helen Keller International (HKI)-Indonesia, the University of Diponegoro, and the Indonesian Department of Health, compared with similar data obtained prior to the start of the crisis, has revealed a dramatically reduced intake of micronutrient-rich foods (e.g. eggs, meat and milk) due to the increase in the prices of basic commodities and reduced purchasing power of the population (see figure 3).

This decrease in dietary iron intake can be correlated with an increase in the prevalence of anemia among children aged 0-35 months (see figure 1) and an increase in the prevalence of anemia among women of reproductive age (see figure 2). *(continued on page 2)*

*Figure 1.
The prevalence of childhood anemia (<110 g/L) before and after the beginning of the crisis in six ecological zones of Central Java*



What are micronutrients?

The term 'micronutrients' refers to vitamins, trace elements (such as iron) and essential fatty acids that are integral to the proper functioning of the human body. Micronutrient deficiencies rarely occur alone; a deficiency of one micronutrient contributes to the deficiency of another. Deficiencies of micronutrients are also collectively known as 'Hidden Hunger' as this form of malnutrition is largely invisible, by all appearances.

Victims of micronutrient deficiencies need not necessarily look malnourished. Yet, the consequences of micronutrient deficiencies are dramatically far-reaching and they constitute a problem that is widespread throughout the world, having both major health and economic repercussions.

At the World Summit for Children held in New York in September 1990, political leaders from around the world endorsed the 'Declaration on Children' and targeted the year 2000 for the virtual elimination of the major micronutrient deficiencies. This goal was unanimously confirmed by 159 countries (including Indonesia) at the International Conference on Nutrition held in Rome in December 1992.

Spotlight: Iron

Reprinted from *The State Of The World's Children 1998*, UNICEF, Oxford University Press, 1998, p78

Impact of iron deficiency

Iron deficiency anemia, the most common nutritional disorder in the world, impairs immunity and reduces the physical and mental capacities of populations. In infants and young children, even mild anemia can impair intellectual development. Anemia in pregnancy is an important cause of maternal mortality, increasing the risk of hemorrhage and sepsis during childbirth. Infants born to anemic mothers often suffer from low birthweight and anemia themselves. Causes include blood loss associated with menstruation and parasitic infections such as hookworm, but an inadequate intake of iron is the main cause.

What iron does

The body needs iron to produce hemoglobin, the protein in red blood cells responsible for carrying oxygen. Iron is also a component of many enzymes essential for the adequate functioning of brain, muscle and immune-system cells.

A certain amount of iron is stored in the liver, spleen and bone marrow. Iron deficiency develops as these stores are depleted and there is insufficient iron absorption. In anemia, the iron deficiency is so severe that the production of hemoglobin is significantly reduced. The main symptoms and signs are paleness of the tongue and inside the lips, tiredness and breathlessness. Deficiencies of vitamin A and other micronutrients also contribute to anemia.

(continued from page 1)

What was the iron situation in Indonesia before the crisis?

Since 1974, Indonesia has had a program of iron supplementation targeting pregnant women. In 1996, the distribution of iron syrup to under-five children in less developed villages in Eastern Indonesia was started, as well as a national campaign for the distribution of iron-folate pills to female factory workers.

Results of the 1995 National Household Health Survey found that 40.5% of under-five children suffered from anemia. Approximately 30% of female workers and 24% to 35% of school children were found to be anemic. Overall, as many as 50-70 million out of Indonesia's total population of 202 million suffered from IDA.

Iron is needed by the body in order to produce hemoglobin, the protein in red blood cells which transports oxygen from the lungs to the rest of the body. Iron is also a component of many enzymes required for the proper functioning of brain, muscle and immune-system cells.

The direct causes of anemia are inadequate iron intake through micronutrient-rich foods and low bioavailability of dietary iron. Indonesia's main staple, rice, contains little iron and is rich in phytate, which inhibits iron absorption. Foods from animal sources (e.g. eggs, meat and milk) are the best sources of dietary iron, but consumption of such foods was generally low. The consumption of foods from plant sources is high, but their iron bioavailability is low, due to inhibitors such as phytate.

What is being done about the problem?

There is currently a great emphasis, within the government and international aid agencies, to establish and enhance a social safety net system in order to alleviate the effects of the crisis on families

Figure 2.
The prevalence of maternal anemia (<120 g/L) before and after the beginning of the crisis in six ecological zones of Central Java

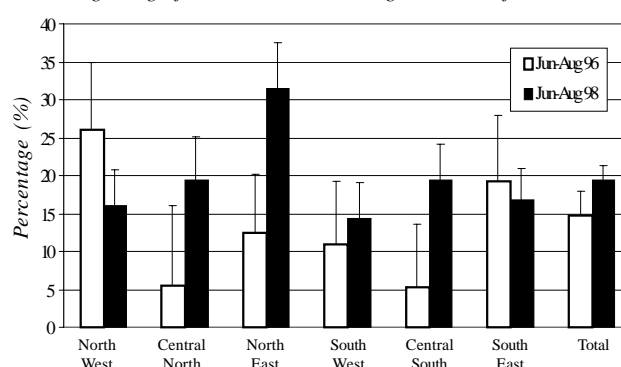
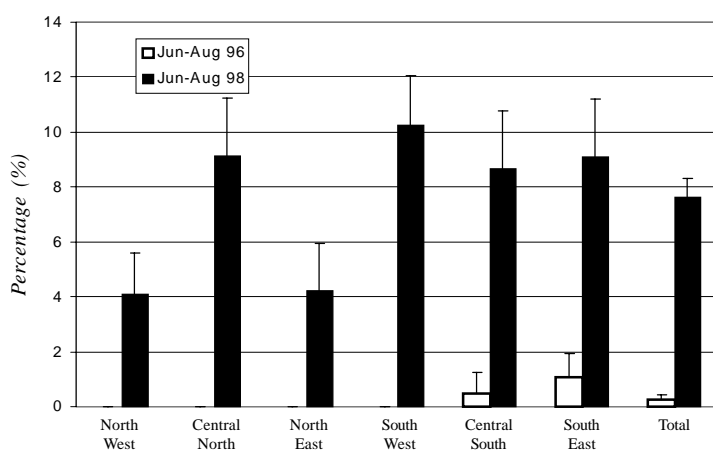


Figure 3. Proportion of mothers who did not consume eggs in the last week before and after the beginning of the crisis in six ecological zones of Central Java



who have been pushed into poverty. The government's own social safety net program focuses on health and educational assistance, through supplementary feeding and scholastic grants components.

However, there is a lack of reliable information on the state of nutrition in the country relevant to the crisis. A good indicator of iron deficiency in a population is anemia prevalence. Although anemia can also be caused by other factors, including chronic diseases and recent infection, such as parasitic infestation, iron deficiency is the most widespread cause of anemia. And although iron deficiency need not necessarily result in anemia, such cases represent a very small percentage. Therefore, an increase in anemia prevalence largely reflects an increase in the prevalence of iron deficiency.

Anemia is also an effective indicator of dietary iron intake among children. Among pregnant women and female factory workers, it is an indicator of a combination of both dietary iron intake and the effectiveness of current iron supplementation programs.

Food intake and food expenditure are also intermediate indicators of dietary iron intake among the population. A reduction in the intake of micronutrient-rich foods (mainly foods from animal sources) due to price increases indicates that the already-high levels of iron deficiency in Indonesia may increase.

What should be done?

General:

- There is a great need for inter-agency cooperation in urban areas to develop and implement innovative approaches toward tackling food insecurity and lack of reliable information

- There is a need for more emphasis on micronutrient deficiencies since deficiencies of these nutrients may have major impacts on maternal and childhood mortality

Monitoring and surveillance:

- Anemia among children and women should be assessed as an indicator of iron deficiency
- Food intake and expenditure should be assessed as an intermediate indicator of iron deficiency

Interventions:

- As there has been a decrease in the consumption of foods of animal origin, it can be expected that there will be an even higher prevalence of micronutrient deficiencies among the already-deficient women and children:
- There is a need for multi-micronutrient supplementation projects targeting pregnant and lactating women in those areas with the highest rates of maternal mortality
- There is a need for micronutrient supplementation for female factory workers in the urban areas
- There is a need for improving vitamin A capsule coverage to children aged 6-23 months of age nationwide (WHO/UNICEF recommends vitamin A capsules to all children aged 6-71 months, twice yearly)
- There is a need for supplementary feeding (fortified food) for children aged 6-23 months both in urban and rural areas; there is a need for social marketing and nutrition education to make the supplementary feeding program more effective and safe



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